

JUNE 1983

# SINCLUS

VOL 1, NO 6

JUNE - JULY - AUGUST at least!

NEW MEETING PLACE!

HOOPER SCHOOL

MAIN STREET ENDWELL

(NEAR WEST END OF GEO. F. HWY - PAST HOOPER RD)

(ACROSS FROM BURGER KING)

Room 301

NEW MEETING FORMAT:

FIRST HALF - SEVERAL DEMONSTRATIONS  
GOING ON - SOMETHING FOR EVERYONE

SECOND HALF - MAIN TOPIC FOR THE  
EVENING

NEWSLETTER OF  
SINCLAIR COMPUTER USERS SOCIETY

P.O. Box 36, JOHNSON CITY, NY 13790

REM

INFORMATION - INFORMATION - INFORMATION - INFORMATION

The TIMEX Computer Corporation has a hotline for questions

PHONE: 800-248-4639 (another way : 800-24-TIMEX!)

Hope you never have to use -- information:

Need individual parts for your ZX81 - TS1000?  
(Especially ULA chip and Sinclair ROM) - as all others can be  
gotten locally.

One source presently - soon to become two --

CALL: Sinclair Research Customer Service

603-882-9534 or 603-882-9676 for PRICE

SEND MONIES TO: Sinclair Research Ltd.  
4 Sinclair Plaza  
Nashua, N.H. 03061  
ATTN: Parts Needed

(include your name and address; postage and handling are included  
in the price).

TIMEX/Sinclair Computer just changed its policy concerning the  
selling of individual parts. Sometime between June 15 and July 1st  
you will be able to contact TIMEX for computer parts only.

ADDRESS: TIMEX Products Service Center  
PO Box K  
7004 Murray Street  
Little Rock, Arkansas 72203

1-501-569-4873

(no price list is available yet)

Bridget Krmeneč  
SINCUS  
June 1983

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HELP WANTED -

PEOPLE TO WRITE A BOOK REVIEW ON ANY  
BOOK OR ARTICLE RELATIVE TO THE SINCLAIR  
COMPUTER - WILL NOT BE GRADED!

## SINCUS OFFICERS

<u>NAME</u>	<u>OFFICE</u>	<u>TELEPHONE</u>
Paul Hill	President	798-7219
Jerry Kendrick	Treasurer	754-1994
Roger Pufky	Financial Secretary	797-8856
Bridget Krmeneč	Recording Secretary	754-1994
Jim Jones	Trustee #1	748-2379
Wes Brzozowski	Trustee #2	785-7007

## COMMITTEE CHAIRPERSONS

<u>NAME</u>	<u>COMMITTEE</u>	<u>TELEPHONE</u>
Dan Dodway	Education	648-3116
George Penney	Education	625-3955
Jim Jones	Library	748-2379
Roger Pufky	Tape Swap	797-8856
Paul Hill (temp.)	Software Develop.	798-7219
Wes Brzozowski	Hardware Develop.	785-7007
Jim Jones	Membership	748-2379
Gary Ennis	Newsletter	687-5360

## ELECTIONS RESULTS

At the May meeting, the following were elected to take office July 1

<u>NAME</u>	<u>OFFICE</u>
Paul Hill	President
Bridget Krmeneč	Vice President
Gary Cole	Financial Secretary
Wes Brzozowski	Recording Secretary
Glenn Wilson	Treasurer
Richard Petrak	Trustee #1
Gary Ennis	Trustee #2

## SINCLAIR COMPUTER USER'S SOCIETY

UNLESS OTHERWISE STATED, articles in SINCUS may be reprinted. Please give credit to the author and SINCUS. Also send two (2) copies of the publication to EDITOR, SINCUS.

Please direct all correspondence and exchange newsletters to:  
EDITOR, SINCUS  
119 Liberty Street  
Owego, New York 13827

ALL ARTICLES ARE THE OPINION OF THE AUTHOR AND NOT NECESSARILY THE VIEWS OF THE SINCLAIR COMPUTER USER'S SOCIETY.

# PRESIDENT POKEs

How to end your computer user's society:

- 1) Just pay dues - let "them" handle things....
- 2) Decline all offices and committee work, you're busy!  
(But give advice on how things should be done)
- 3) If appointed to a committee don't do anything, after all it's a courtesy appointment!
- 4) Don't rush to pay dues, they're too high anyway!
- 5) Don't encourage others to join, that's selling!
- 6) Don't read the newsletter, it's not that important!  
(Then complain that you're not informed.)
- 7) Don't volunteer, then complain that the meetings aren't interesting, the newsletter is too short, and you're never appreciated!

The society has gotten bigger, but the number of people involved in running the society has not grown. Thank you for voting for your choices for elected office - now help them! We would like to grow not only bigger, but better by having many services to offer with our increasing dues. Only by volunteering your help will this be possible.

We need:

- 1) People with 2040 printer to volunteer to run programs off for society business needs (mailing lists and newsletter).
- 2) People with access to copiers to make copies at little or no cost.
- 3) People with time for and experience (not required by everyone who helps on this) in DATABASE to develop library indexing system - article by article.
- 4) People to help out beginners with BASIC programming.
- 5) People who are familiar with machine code to teach others.
- 6) People to phone others for information and last minute changes - if we each take ten names - that's all it would take!
- 7) People to write articles for newsletter - review products for others at meetings.

Paul Hill  
President  
SINCUS

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TO FIND RAMTOP - TYPE IN

PRINT PEEK 16388 + 256 \* PEEK 16389



# LPRINT - A ROM TEST

Often I marvel at the amount of information stored in my computer -- both in RAM (a user changeable random-access memory) and in ROM (a fixed, read only memory which makes the user programs work). In the ROM, 8K bytes of program and data are stored. This is 8X1024 or 8,192 bytes (or 65,536 bits!) of information. Each bit is either a 1 or a 0 depending on what the designer wanted to do.

If one of these bits were in error, would the computer operate properly? It is conceivable that the error would be such that it would never occur frequently, but I felt I needed a means of reassuring myself that my ROM did not contain an error. Thus, I devised a ROM checksum. This error checking technique is similar to "Synesum" in Sync or "Syntactic Sum" in Syntax (which are used to verify correct program entry). The program is capable of running on any TIMEX/Sinclair or Sinclair computer.

```
5 LET K=8
10 LET A=0
15 LET B=0
20 FOR I=1 TO 1024*K
30 LET A=A + PEEK(I-1)
40 IF A<1000 THEN GOTO 70
50 LET B=B+1
60 LET A=A-1000
70 NEXT I
80 PRINT B;A
```

Using this program, which takes several minutes to run in fast mode, I got the checksum 855106. So did several of my friends. This indicates that we probably all have the same ROM (the test is not foolproof). If you have the old 8K ROM (the one with known bugs in it), let us know what sum you get. This technique could be used to identify ROMs. Changing line 5 to LET K=4, the sum is 428876. With a 4K ROM (ZX-80) and K=4, the sum is 390829.

(Reprinted from SINCLAIR/TIMEX USER GROUP NEWSLETTER, The Boston Computer Society, volume 1, issue 6, December 1982, author not listed)

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## HELP WANTED —

NO EXPERIENCE NEEDED — PEOPLE TO WRITE A SHORT ARTICLE ON ANY SOFTWARE OR HARDWARE THAT THEY USE AND LIKE. JUST WRITE WHAT IT IS AND WHY YOU LIKE IT AND HOW YOU USE IT. REPLY TO EDITOR

WHERE TO PUT MACHINE CODE

by Scott Eddy

- There are a number of possible places to store machine code:
- (1) Above RAMTOP. This is a good safe place not bothered by NEW, but you can't SAVE it.
  - (2) In a REM statement at the beginning of the program area. You write  

```
1 REM 12345.....n
```

 (where n=number of bytes you wish to reserve)  
 (NOTE - starting address for your machine code is always 16514, or 4082h)
  - (3) In a REM statement at the end of the program area.
  - (4) In the variables area. (Don't use RUN or CLEAR!)

I am prepared to ignore these last two places.

Included in this discussion are techniques for writing, listing, inserting, deleting, and easily transferring machine code back and forth between a REM statement and above RAMTOP by means of HEXLD4 programs.

HEXLD, HEXLD2 and HEXLD3 can be found in "Mastering Machine Code on Your ZX-81", by Toni Baker.

HEXLD stores your machine code at 30000. (you have to set RAMTOP at 30000 before you RUN it.) (Ed. note - in the TIME/Sinclair User's Manual see page 124 for how to change RAMTOP).

HEXLD2 asks for an address, in hexadecimal, so you have a choice. Also, you can use character codes instead of hex code if you want to. If you store your code in a REM statement, (using 4082h as the starting address), the procedure is to delete the HEXLD2 program line by line, leaving only line 1 - the REM statement - and then to type in the basic lines of your program.

HEXLD3 works as follows:

- RUN To list stored machine code
- RUN 100 To write new machine code
- RUN 200 To insert new machine code
- RUN 300 To delete previous machine code
- RUN 400 To SAVE machine code

The machine code for HEXLD3 is stored in a REM statement at the beginning of the program in 246 bytes. The "subject program" therefore has to go above RAMTOP.

A good thing to have handy is a method for converting back and forth between decimal and hex. Mine is a program, "Hex", run on a Texas Instruments TI 58C calculator.

User-defined Key                      Operation

- A                                      d to h
- B                                      h to d
- C                                      decimal address, 2 bytes

An example of this last operation is that when you want to change RAMTOP, you enter 30000, and you get 48 and 117.

(AT THIS POINT THE AUTHOR PROVIDES THE COMPLETE LISTING FOR HEXLD4 IN HEX. - in the interest of space and accuracy we do not list the program at this time. You may obtain a photo copy of the program by writing SINCUS or contacting the Editor at a monthly meeting)

(continued on the next page)

WHERE TO PUT MACHINE CODE (continued)

The BASIC for HEXLD4 is as follows:

```
1  REM      (246 bytes)
10 LET L=16514
20 FOR X=31750 TO 31995
30 POKE X, PEEK L
40 LET L=L+1
50 NEXT X
60 POKE 16388, 48
70 POKE 16389, 117
80 PRINT AT 8,12;"HEXLD4"
90 PAUSE 300
100NEW
```

When HEXLD4 is RUN the machine code is stored above RAMTOP in 246 bytes; from 31750 to 31995, or 7C06 to 7CFB in hex. RAMTOP is set at 30000. After identifying itself, the BASIC is then wiped out by a new statement.

HEXLD4 BASIC, the next program on the tape, and necessary for the operation of HEXLD4, can be loaded or wiped out with the command NEW at any time. Self-loading machine code programs such as this one can be loaded into adjacent locations above RAMTOP. You RUN is exactly as you do HEXLD3: from the beginning, lines 100, 200, 300, or 400 to list, write, insert, delete, or SAVE, respectfully.

(AT THIS POINT THE AUTHOR LISTS THE BASIC FOR HEXLD4 - again you may obtain this by contacting the Editor at a monthly meeting or writing to SINCUS Editor)

The next program on the tape is "DownLoad" (the listing is again available for you). This program works the other way around from these self-loading programs, that, when run, transfer from a REM statement to above RAMTOP, then wipe out the BASIC. It asks for the location of the machine code, and the number of bytes, then stores it in a REM statement in which 255 bytes (or whatever you needed) had been reserved. You then edit and delete the unused part of the REM statement, erase lines 10 through 100, add appropriate lines of BASIC, then name and SAVE it.

The thing to do now might be to establish a machine code convention whereby really useful machine code routines could be written at addresses set aside by common agreement. A bar graph could be drawn, say, from 30000 to 32767 at increments of 25 bytes per line. Programs could be listed with their instructions:

<u>NAME:</u>	<u>INSTRUCTIONS:</u>
HEXLD4	<u>LOAD</u> and <u>RUN</u> HEXLD4 BASIC
RENUMBER	<u>RAND</u> <u>USR</u> 32000

They should all set RAMTOP to the same place to avoid confusion and concern over order of loading.

Scott Eddy  
SINCUS  
June 1983

(AGAIN TO OBTAIN THE FULL LISTINGS OF THE PROGRAMS IN SCOTT'S ARTICLE - write to Editor, SINCUS or see me at the monthly meeting)

# TIMEXLY TIPS 6/83

TRY THIS:

10 LET A\$ = "A\$"

15 DIM A\$(2,2)

20 LET A\$(1) = A\$

25 LET A\$(2) = "22"

30 PRINT A\$(1), A\$(2)

WHAT HAPPENS WHEN YOU RUN THIS? WHY?

\*\*\*\*\*

FOR FINDING OUT HOW MUCH MEMORY

YOU HAVE USED TYPE THIS:

PRINT PEEK 16396 + 256 \* PEEK 16397 - 16384

THE ANSWER IS NUMBER OF BYTES - THIS INCLUDES ALL OF THE SYSTEM VARIABLES.

THANKS & A SCROLL OF THE SCREEN TO CARL TERRY  
\*\*\*\*\*

WANT YOUR PROGRAM TO COME UP RUNNING

WHEN YOU LOAD IT? ADD THESE LINES

9990 SLOW

9993 SAVE "PROGRAM" (USING ITS "NAME")

9996 GOTO 1

9996 CAN BE RUN BUT THAT WILL WIFE OUT THE VARIABLES!

TO SAVE THE PROGRAM - START RECORDER AND

TYPE GOTO 9990 - AFTER IT IS SAVED - LIST 9990



# 2K EXPRESS

by  
GARY ENNIS

EDIT - apologies to Wes Brzozowski for not listing him as Trustee in last months issue. Also apologizing for "Low Resolution" graphics that our budget still requires. Improving graphics and mailing-you the newsletter only require one thing \$\$\$\$\$ - we have the technology and the help (although more help is welcome!).

HELP - please submit to Editor, SINCUS, 119 Liberty St. Owego, NY 13827, any errors that you find in the TIMEX/Sinclair Users manual. An unidentified man gave me one at last month's meeting - page 88 exercise 1 - what's wrong with LEN A\$="ATN 1\*4" ?

REM - just arrived article in Boston Computer Society newsletter states "Numbers, in magnitude (absolute value) less than one and containing two, three, or four zeroes following the decimal point, are LPRINTed incorrectly. Apparantly the bug was mentioned in the manual that came with a Sinclair printer but may have been omitted from the TIMEX 2040 manual. Anyone with a printer - please verify this information.

EDIT - big thank you to Scott Eddy for his outstanding article on machine code. The full program listings will be available for the membership use. The article represented a tremendous amount of work as you will realize when you see the listings (which take up 10 more pages!). Hope everyone understands the editor's reluctance to try to copy seven pages of machine code written in hex!

CHECK OUT THE COMPETITION - Texas Instrument's stock plummets more than 25% (while the market is going UP!), the President of Apple is promoting rock concerts (at a substantial loss sposedly), the President of Commodore is selling his stock (reportedly worth over \$7 million) and another computer corporate whiz was killed when his Ferrari went over an embankment. Yet predictions still say the computer explosion is still with us.

IF YOU MISSED IT - the "Computer Programme", the PBS 1/2 hour show on computers that airs at 8 PM each Wednesday can also be seen at 8 AM on Saturday mornings!

AGAIN - the biggest single need that this hobby/educational pursuit has is the need for competent reviews of software. All you have to do is to write a page description of what it is, what it does and why you like it. These reviews will help all of us in making purchasing decisions.

PROBLEM - I recently responded to a company that is interested in opening some TIMEX/Sinclair retail outlets to support the tremendously growing market. It is interesting to note that many of the retailers that carried the computer when it first appeared last year no longer carry the machine or the software. Watch for more future software to be in ROM units that just plug in.

FOR THOSE THAT ASKED - last month's little exercise in "number crunching" produced an answer "K". K is the sum of all of the errors (AES R). Theoretically K should be  $\emptyset$ , but you have to spend over the thousand dollar level to buy a computer that does!

DID YOU EVER HEAR about the bug in a central processing unit of a main frame computer that incorrectly dealt with the number 8 (I think it read it as 2!). The computer had been sold to an engineering fir that was using it to design buildings and bridges! Every calculation for something like two years had to be repeated to make sure no bridges were going to collapse!

GE



# ATTENTION:

TIMEX/SINCLAIR COMPUTER USERS

LOCAL USERS GROUP

SINCLAIR COMPUTER USERS SOCIETY

P.O. BOX 36, JOHNSON CITY, NY 13790

MEETS AT HOOPER SCHOOL ON MAIN ST.  
IN EDWELL (JUST WEST OF HOOPER ROAD  
ACROSS FROM BURGER KING)

JUNE 15 - WED - 6:30

JULY 20 - WED - 6:30

AUG 17 - WED - 6:30

FIRST HALF OF MEETING —

DEMONSTRATIONS WITH 1 TO 1 CONTACT  
AND "HANDS ON" CHANCES TO LEARN

SECOND HALF — MAIN PROGRAM

SOMETHING FOR EVERYONE —

FREE — OPEN TO THE PUBLIC — FREE

LEARN HOW TO GET THE MOST OUT  
OF YOUR TIMEX/SINCLAIR COMPUTER

## SPECIAL SINCUS' ANNOUNCEMENT

First, let me apologize for the absence of the past two SINCUS NEWS issues, May and June. As noted in my April column, I have started a new career. The combination of six day work weeks, over an hour a day in travel time, and the work of having to move about 20% of my life out of the dry cleaners and into my mobile home made it very difficult to get much else done.

Second, the club did meet in May and June as announced in the April newsletter. We are meeting in July and August and for many months after that!!!

**MOST IMPORTANT - the next meeting is NEXT WEDNESDAY!!  
WEDNESDAY**

**7:00 P.M.**

### **VESTAL PUBLIC LIBRARY**

The JULY issue of SINCUS NEWS will be distributed to those attending, along with the explanation of how to use "CLONE". If you are unable to attend, the newsletter will be mailed to you the following day. If you have purchased a preproduction copy of "Clone" from the club, you may obtain the documentation by calling 770-8880 daily 10 AM to 5:30 PM. Again, "Clone" is being made available ONLY to local SINCUS members so that we may have it "beta tested".

If you have thought Sinclair computers and their users had dropped out of sight - NOTHING COULD BE FURTHER FROM THE TRUTH.

1. SINCUS member Wes Brzozowski has completed several very important projects ("Clone", "Interface Zero", and the "64 Character Display" just to name a few)
2. SINCUS member Charles Koeth has been equally busy with hardware projects ("Clock" and "Voice Synthesizer").
3. SINCUS member Dave Schoenwetter has gone deeper into the code of "Smart Term II" and produced code to drive a full sized printer and to save the contents of the buffer.
4. DISCOUNT COMPUTER OUTLET has word that their "Silver Avenger" (a TIMEX 2068 with Spectrum rear edge connector, Spectrum ROM emulator, and a disk drive) has been shipped from Portugal. They will be carrying TIMEX 2068 software.
5. Hardware projects are just waiting for someone to take them out and build. We have the printer interface for 2068 or T1000, plus the keyboard for the T1000.
6. Dave Schoenwetter is experimenting with the possibility of hooking a Hayes compatible modem to his serial port on his printer interface. If it works 1200 baud may be usable on the 2068!

So, inspite of my inability to get the job done - and my thanks to Paul Hill, Carl Morris and Scott Eddy in helping with the newsletter and back issue projects - SINCUS still survives. Much is going on - I invite you to join us Wednesday. If you cannot come call 770-8880 and let us know you still support us - after all dues will be payable this month!

Finally, I am going to need some help on SINCUS NEWS - typing articles, maintaining the mailing list, printing mailing labels, licking stamps, and mailing. I can handle the editing and pasteup and printing. If you can help, call 770-8880.

THANKS FOR YOUR PATIENCE - GARY ENNIS, Editor, SINCUS NEWS

# SINCUS IS ALIVE!

SINCUS NEWS JUST RAN INTO  
PRODUCTION PROBLEMS!

SINCLAIR COMPUTER USERS SOCIETY MEETING  
WED. - JULY 17 - VESTAL LIBRARY 7:00 PM  
NEWSLETTERS WILL BE PASSED OUT AT THAT MEETING!

SINCUS NEWS  
P.O. Box 523  
OWEGO, N.Y. 13827

PAUL A. HILL  
1229 RHODES ROAD

JOHNSON CITY NY

13790  
M

STILL SUPPORTING TIMEX and SINCLAIR COMPUTERS!